Effects of Extraction of Tea with Tannase and Viscozyme Enzymes on Physiochemical and Sensory Properties of Cold Water Soluble Instant Tea

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Due to the presence of Polyphenols and calcium haze develop and it affects the appeal of the beverage. Therefore, the effects of pre-treatment of tea with Tannase and Viscozyme enzymes on the physiochemical and organoleptic properties of cold-water-soluble instant black tea were investigated. Black tea samples (50 g each) were treated with five different levels (0.02%,0.04%,0.06%,0.08%,0.1%) of enzymes (dissolved in 150 mL of distilled water) separately at 40^0 C for 40 minutes, Then, 150 mL of boiling water was added to each sample and extracts were obtained after brewing at 95^0 C for 10 minutes. Extracts were centrifuged at 3500 rpm for five minutes at room temperature and the supernatants were obtained. Based on the physiochemical properties like Turbidity, polyphenol content, total soluble solids. Of supernatants, enzyme levels for pre-treatment were optimized. Secondly, black tea samples were treated with a combination of optimized enzyme levels following a similar procedure. Supernatants were freeze-dried and analyzed for physiochemical and sensory properties. Each experiment was repeated thrice. Physiochemical and sensory data were analyzed by Duncan Multiple Range test and Friedman test ($p<0.05$) respectively. The enzyme level of 0.06% which resulted in the lowest turbidity by both of the enzymes was selected as optimum. Revealing improvement in physiochemical properties, the sample treated with enzyme combination was significantly lower in turbidity (88.2±5.2) and higher in Theaflavin content (1.3±0.1%) and brightness (88.8±1.4) as compared to the control (99.4±5.5, 1.0±0.1% and 70.2±2.8 respectively). Further, it received higher ranks for sensory properties. Viscozyme and Tannase pre-treatment of tea extraction improve the quality of Cold-Water-Soluble Instant Tea.

Keywords: Instant black tea, Viscozyme, Tannase, Haze